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Service Manual

Composite / Component Video Terminal Board

TY-42TM6Y

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
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1. Safety Precautions

1.1. General Guidelines

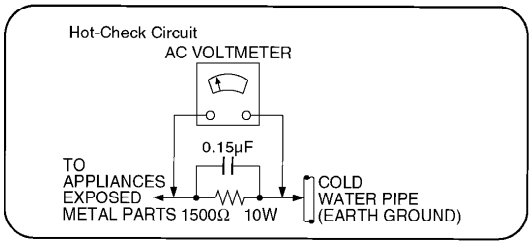
1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

1.1.1. Leakage Current Cold Check

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc.

When the exposed metallic part has a return path to the chassis, the reading should be between 1M Ω and 5.2M Ω . / When the exposed metal does not have a return path to the chassis, the reading must be∞.

Figure 1



1.1.2. Leakage Current Hot Check (See Figure 1.)

1. **Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.**
2. **Connect a 1.5k Ω , 10 watts resistor, in parallel with a 0.15 µ F capacitors, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1.**
3. **Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.**
4. **Check each exposed metallic part, and measure the voltage at each point.**
5. **Reverse the AC plug in the AC outlet and repeat each of the above measurements.**
6. **The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.**

2. Prevention of Electro Static Discharge (ESD) to Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge (ESD).

1. **Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.**
2. **After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as alminum foil, to prevent electrostatic charge buildup or exposure of the assembly.**
3. **Use only a grounded-tip soldering iron to solder or unsolder ES devices.**
4. **Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static (ESD protected)" can generate electrical charge sufficient to damage ES devices.**
5. **Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.**
6. **Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, alminum foil or comparable conductive material).**
7. **Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.**

   Caution

   Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. **Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise hamless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).**

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are imporant for safety.
These parts are marked by ⚠ in the schematic diagrams, Exploded Views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

3. About lead free solder (PbF)

Note: Lead is listed as (Pb) in the periodic table of elements.
In the information below, Pb will refer to Lead solder, and PbF will refer to Lead Free Solder.
The Lead Free Solder used in our manufacturing process and discussed below is (Sn+Ag+Cu).
That is Tin (Sn), Silver (Ag) and Copper (Cu) although other types are available.
This model uses Pb Free solder in it's manufacture due to environmental conservation issues.
For service and repair work, we'd suggest the use of Pb free solder as well, although Pb solder may be used.
PCBs manufactured using lead free solder will have the PbF within a leaf Symbol

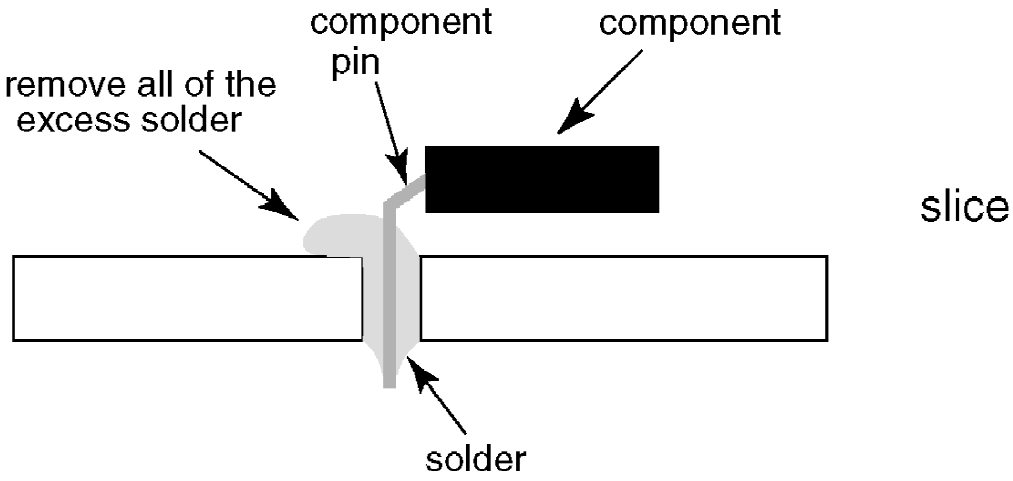
stamped on the back of PCB.

Caution

- Pb free solder has a higher melting point than standard solder. Typically the melting point is 50 ~ 70 °F (30~40 °C) higher. Please use a high temperature soldering iron and set it to 700 ± 20 °F (370 ± 10 °C).

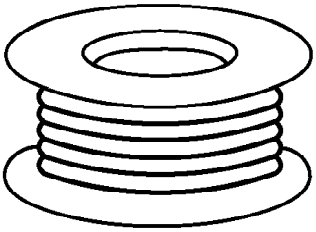
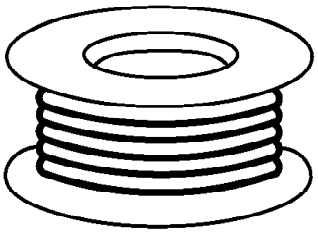
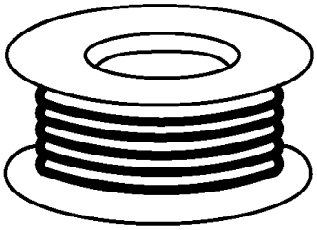
- Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C).
If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If this is not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.

- After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side. (see figure below)



Suggested Pb free solder

There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also be used.

0.3mm X 100g	0.6mm X 100g	1.0mm X 100g
		

4. Conductor Views

4.1. HY-Board

5. Schematic Diagrams

5.1. Schematic Diagram Notes

5.2. HY-Board Block Diagram

5.3. HY-Board (1 of 2) Schematic Diagram

5.4. HY-Board (2 of 2) Schematic Diagram

6. Replacement Parts List

6.1. Relpacement Parts List Notes

Important Safety Notice

Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

RTL (Retention Time Limited)

Note: The marking (RTL) indicates that the Retention Time is Limited for this item.
After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention.
After the end of this period, the assembly will no longer be available.

Abbreviation of part name and description

1. Resistor

Example:

ERD25TJ104 C 100KOHM, J, 1/4W
Type Allowance

Type	Allowance
C : Carbon	F : ±1%
F : Fuse	G : ±2%
M : Metal Oxide Metal FIlm	J : ±5%
S : Solid	K : ±10%
W : Wire Wound	M : ±20%

2. Capacitor

Example:

ECKF1H103ZF C 0.01UF, Z, 50V
Type Allowance

Type	Allowance
C : Ceramic	C : ±0.25pF
E : Electrolytic	D : ±0.5pF
P : Polyester Polyprop lene	F : ±1pF
	G : ±3pF
	J : ±5pF
T : Tantalum	K : ±10pF
	L : ±15pF
	M : ±20pF
	P : +100%, -0%
	Z : +80%, -20%

6.2. Replacement Parts List

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C3001,02	ECJ2XB1E104K	C 0.1UF, K, 25V	2	
C3003,04	EEVHP1A100	E 10UF, 10V	2	
C3005-07	ECJ1XB1C104K	C 0.1UF, Z, 16V	3	
C3009	EEVHB1C470	E 47UF, 16V	1	
C3010-12	ECJ1XB1C104K	C 0.1UF, Z, 16V	3	
C3013	ECJ2VF1C105Z	C 1UF, Z, 16V	1	
C3014	EEVHB1C470	E 47UF, 16V	1	
C3015	ECJ1XC1H470J	C 47PF, J, 50V	1	
C3016	ECJ1XC1H220J	C 22PF, J, 50V	1	
C3017	ECJ1XC1H680J	C 68PF, J, 50V	1	
C3019	ECJ3YB0J335K	C 33UF, J, 25V	1	
C3021	ECJ2VF1C105Z	C 1UF, Z, 16V	1	
C3022	ECJ1VF1A105Z	C 1UF, Z, 10V	1	
C3051-54	ECJ1XC1H561J	C 560PF, J, 50V	4	
C3055,56	ECJ2VF1C105Z	C 1UF, Z, 16V	2	
C3101	EEVHB0G221P	E 220UF, 4V	1	
C3102	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3103	ECJ1VF1A105Z	C 1UF, Z, 10V	1	
C3104	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3105	EEVHB0G221P	E 220UF, 4V	1	
C3106-21	ECJ1XB1C104K	C 0.1UF, Z, 16V	16	
C3122	ECJ1VF1A105Z	C 1UF, Z, 10V	1	
C3123-26	ECJ1XB1C104K	C 0.1UF, Z, 16V	4	
C3127	ECJ2VF1C105Z	C 1UF, Z, 16V	1	
C3128-34	ECJ1XB1C104K	C 0.1UF, Z, 16V	7	
C3135	ECJ1VB1C103K	C 0.01UF, K, 16V	1	
C3136	ECJ1XC1H330J	C 33PF, J, 50V	1	
C3137	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3138	ECJ3XB0J106M	C 10UF, M,6.3V	1	
C3139	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3140	ECJ1XC1H101J	C 100PF, J, 50V	1	
C3141	ECJ1XB0J105K	C 1UF, K, 16V	1	
C3142	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3144	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3146	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3147	ECJ3XB0J106M	C 10UF, M,6.3V	1	
C3148	ECJ1XB0J105K	C 1UF, K, 16V	1	
C3149	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3150	ECJ1VB1C103K	C 0.01UF, K, 16V	1	
C3151	ECJ1XC1H330J	C 33PF, J, 50V	1	
C3152	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3153	ECJ1XC1H101J	C 100PF, J, 50V	1	
C3154	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3156	ECJ1XB0J105K	C 1UF, K, 16V	1	
C3157	ECJ3XB0J106M	C 10UF, M,6.3V	1	
C3158	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3159	EEVHB0G221P	E 220UF, 4V	1	
C3160,61	ECJ1XB1C104K	C 0.1UF, Z, 16V	2	
C3162-66	ECJ1VF1A105Z	C 1UF, Z, 10V	5	
C3167-78	ECJ1XB1C104K	C 0.1UF, Z, 16V	12	
C3179	EEVHB0G221P	E 220UF, 4V	1	
C3180-83	ECJ1XB1C104K	C 0.1UF, Z, 16V	4	
C3184	EEVHB0G221P	E 220UF, 4V	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C3185	ECJ1XC1H060D	C 6PF, D, 50V	1	
C3186	ECJ1XC1H470J	C 47PF, J, 50V	1	
C3187	EEVHB0G221P	E 220UF, 4V	1	
C3188	ECJ1VF1A105Z	C 1UF, Z, 10V	1	
C3202-06	ECJ1VF1A105Z	C 1UF, Z, 10V	5	
C3207	EEVHB0G221P	E 220UF, 4V	1	
C3208-14	ECJ1VF1A105Z	C 1UF, Z, 10V	7	
C3216,17	ECJ1VF1A105Z	C 1UF, Z, 10V	2	
C3218	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3219	EEVHB0J101P	E 100UF, 6.3V	1	
C3253	ECJ1XB1H102K	C 1000UF, Z, 50V	1	
C3254	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3255	ECJ1XB1H102K	C 1000UF, Z, 50V	1	
C3256	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3257	ECJ1XB1H102K	C 1000UF, Z, 50V	1	
C3258	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3259	ECJ1XB1H102K	C 1000UF, Z, 50V	1	
C3260	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3261	EEVHB0G221P	E 220UF, 4V	1	
C3262	ECJ1XB1H102K	C 1000UF, Z, 50V	1	
C3263,64	ECJ1XB1C104K	C 0.1UF, Z, 16V	2	
C3265	EEVHB0G221P	E 220UF, 4V	1	
C3266	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3308	EEVHB0G221P	E 220UF, 4V	1	
C3309	ECJ1VF1A105Z	C 1UF, Z, 10V	1	
C3311,12	ECJ1XB1C104K	C 0.1UF, Z, 16V	2	
C3313	ECJ1VF1A105Z	C 1UF, Z, 10V	1	
C3315	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C3316	ECJ2VF1C105Z	C 1UF, Z, 16V	1	
C3317	ECJ1VF1A105Z	C 1UF, Z, 10V	1	
C3318-21	ECJ1XB1C104K	C 0.1UF, Z, 16V	4	
C3322,23	EEVHB0G221P	E 220UF, 4V	2	
C3324	EEVHB0J101P	E 100UF, 6.3V	1	
C3325,26	EEVHB1C470	E 47UF, 16V	2	
C3327-30	ECJ1XB1C104K	C 0.1UF, Z, 16V	4	
C3401	EEVHP1C100R	E 10UF, 16V	1	
C3507,08	ECJ3XB0J106M	C 10UF, M,6.3V	2	
C3510,11	ECJ2VF1C105Z	C 1UF, Z, 16V	2	
C3520	EEVHB1C470	E 47UF, 16V	1	
C3521	ECJ2VF1C104Z	C 0.1UF, Z, 16V	1	
C3523	EEVHB1C470	E 47UF, 16V	1	
C3524-26	ECJ2VF1C104Z	C 0.1UF, Z, 16V	3	
C3527	TCUY0J685MBM	C 6.8UF, 6.3V	1	F1K0J685A003
D3001	MA729	DIODE	1	MA2J729
D3002	MA3100M	ZENER DIODE	1	MAZ31000M
D3351,52	MA153	DIODE	2	MA3X153
H0	K1KA08A00293	8P CONNECTOR	1	
H1,H2	K1KA80B00034	80P CONNECTOR	2	
IC3101	PQ07VZ012ZP	IC	1	C0DBEZG00004
IC3102	C0DBZLB00001	IC	1	
IC3103	C1AB00001826	IC	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
IC3104	PST9128NR	IC (LOGIC)	1	C0EBE0000066
IC3105	C0JBAZ001834	IC	1	
IC3201	C3HBKZ000001	IC	1	
IC3251	C0ZBZ0000684	IC	1	
IC3301	MM1065ZMR	LINEAR IC	1	C0CBABB00029
IC3302	PQ07VZ012ZP	IC	1	C0DBEZG00004
IC3303	AN80L25RMS	IC	1	
IC3305	JLC1562BF	MOS IC (MICON LSI)	1	C0JBAZ001265
IC3311	C0JBBZ000285	IC	1	
IC3401	C0ABZA000028	IC	1	
IC3699	TVRJ981	INTEGRATED CIRCUIT	1	C3EBGC000018
JK3001	K1CB106B0027	CONNECTOR	1	
JK3002	K1QBB2AB0005	CONNECTOR	1	
JK3004	K2HA204B0097	JACK	1	
JK3303	K2HA204B0097	JACK	1	
JK3304	K1QBB5AB0005	CONNECTOR	1	
JS3301-12	ERJ3GEY0R00	M 0 OHM, 1/16W	12	
JS3501-03	ERJ6GEY0R00	M 0 OHM, 1/10W	3	
JS3506-08	ERJ6GEY0R00	M 0 OHM, 1/10W	3	
L3001	J0HABB000003	LC FILTER	1	
L3002,03	J0HABB000004	LC FILTER	2	
L3005	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
L3006	J0E8004B0008	LC FILTER	1	
L3007	G1C2R2K00006	INDUCTION COIL	1	
L3051,52	ELJNA1R5JF	COIL	2	
L3101-04	ELJPA100KB	CHIP INDUCTOR	4	
L3107	J0JGC0000021	CHIP INDUCTOR COIL	1	
L3108	ELJPA100KB	CHIP INDUCTOR	1	
L3201	ELJPA100KB	CHIP INDUCTOR	1	
L3251,52	ELJPA2R2MF	CHIP INDUCTOR	2	
L3303	ELJPA100KB	CHIP INDUCTOR	1	
L3305-08	ELKE103FA	NOISE FILTER	4	
L3525,26	J0HABB000003	LC FILTER	2	
L3527-29	J0HABB000004	LC FILTER	3	
L3530,31	J0HABB000003	LC FILTER	2	
L3532,33	ELJPA100KB	CHIP INDUCTOR	2	
Q3004,05	2SD601A	TRANSISTOR	2	2SD0601A
Q3007	2SB709A	TRANSISTOR	1	2SB0709A
Q3023	2SD601A	TRANSISTOR	1	2SD0601A
Q3051,52	2SD601A	TRANSISTOR	2	2SD0601A
Q3101	2SB709A	TRANSISTOR	1	2SB0709A
Q3102-04	2SD1030	TRANSISTOR	3	
Q3401	2SD601A	TRANSISTOR	1	2SD0601A
Q3403	2SD601A	TRANSISTOR	1	2SD0601A
Q3501	2SD601A	TRANSISTOR	1	2SD0601A
Q3502	2SB709A	TRANSISTOR	1	2SB0709A
Q3503-05	2SD601A	TRANSISTOR	3	2SD0601A
Q3506	2SB709A	TRANSISTOR	1	2SB0709A
R3001,02	ERJ6ENF75R0	M 75 OHM, 1/10W	2	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R3003	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3004,05	ERJ6ENF75R0	M 75 OHM, 1/10W	2	
R3006	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3007	ERJ3GEYJ104	M 100KOHM,J,1/16W	1	
R3008	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3009	TAJAAH0101JV	M 100 OHM,J,1/16W	1	D0GB101JA006
R3010	ERJ3GEYJ153	M 15KOHM,J,1/16W	1	
R3011	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3012	ERJ3GEYJ752	M 7.5KOHM,J,1/16W	1	
R3013	ERJ3GEYJ472	M 4.7KOHM,J,1/16W	1	
R3014	ERJ3GEYJ752	M 7.5KOHM,J,1/16W	1	
R3015	ERJ3GEYJ472	M 4.7KOHM,J,1/16W	1	
R3026	ERJ3GEYJ332	M 3.3KOHM,J,1/16W	1	
R3027	ERJ3GEYJ153	M 15KOHM,J,1/16W	1	
R3031	ERJ3EKF1800	M 180 OHM, 1/16W	1	
R3032	ERJ3EKF6200	M 620 OHM, 1/16W	1	
R3033	TAJAAH0101JV	M 100 OHM,J,1/16W	1	D0GB101JA006
R3035	ERJ3GEYJ102	M 1KOHM,J,1/16W	1	
R3036	ERJ6ENF1800	M 180 OHM, 1/10W	1	
R3038	ERJ3GEYJ272	M 2.7KOHM,J,1/16W	1	
R3040	ERJ3EKF3300	M 330 OHM, 1/16W	1	
R3042	ERJ3EKF6801	M 6.8KOHM, 1/16W	1	
R3045	ERJ3EKF2200	M 220 OHM, 1/16W	1	
R3046	ERJ3EKF1000	M 100 OHM, 1/16W	1	
R3047	ERJ3GEYJ102	M 1KOHM,J,1/16W	1	
R3048	TAJAAH0101JV	M 100 OHM,J,1/16W	1	D0GB101JA006
R3049	ERJ3GEYJ102	M 1KOHM,J,1/16W	1	
R3050	ERJ6ENF75R0	M 75 OHM, 1/10W	1	
R3051,52	ERJ3GEYJ333	M 33KOHM,J,1/16W	2	
R3053	ERJ3GEYJ153	M 15KOHM,J,1/16W	1	
R3054	ERJ3GEYJ333	M 33KOHM,J,1/16W	1	
R3055	ERJ3GEYJ153	M 15KOHM,J,1/16W	1	
R3056	ERJ3GEYJ333	M 33KOHM,J,1/16W	1	
R3057,58	TAJAAH0101JV	M 100 OHM,J,1/16W	2	D0GB101JA006
R3059,60	ERJ3GEYJ102	M 1KOHM,J,1/16W	2	
R3061,62	ERJ3GEYJ561	M 560 OHM,J,1/16W	2	
R3065	ERJ6GEY0R00	M 0 OHM, 1/10W	1	
R3101	ERJ3GEYJ220	M 22 OHM,J,1/16W	1	
R3102	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3103,04	ERJ3GEYJ220	M 22 OHM,J,1/16W	2	
R3105	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3106	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3107	ERJ3GEYJ330	M 33 OHM,J,1/16W	1	
R3108	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3112,13	ERJ3EKF1501	M 1.5KOHM, 1/16W	2	
R3114	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3115-17	ERJ3GEYJ102	M 1KOHM,J,1/16W	3	
R3118	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3119-21	ERJ3GEYJ121	M 120 OHM,J,1/16W	3	
R3122	ERJ3EKF8201	M 8.2KOHM, 1/16W	1	
R3123	ERJ3EKF1502	M 15KOHM, 1/16W	1	
R3124	ERJ3EKF10R0	M 10 OHM, 1/16W	1	
R3125	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3127	ERJ6ENF12R0	M 12 OHM, 1/10W	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R3129	ERJ6ENF12R0	M 12 OHM, 1/10W	1	
R3131	ERJ3GEYJ220	M 22 OHM,J,1/16W	1	
R3133-35	ERJ6ENF10R0	M 10 OHM, 1/10W	3	
R3136-39	ERJ3GEY0R00	M 0 OHM, 1/16W	4	
R3140	ERJ3GEYJ220	M 22 OHM,J,1/16W	1	
R3141-43	ERJ3GEY0R00	M 0 OHM, 1/16W	3	
R3144,45	ERJ3GEYJ102	M 1KOHM,J,1/16W	2	
R3148,49	ERJ3GEYJ220	M 22 OHM,J,1/16W	2	
R3151	ERJ3GEYJ220	M 22 OHM,J,1/16W	1	
R3152	ERJ3GEYJ561	M 560 OHM,J,1/16W	1	
R3153	ERJ3GEYJ221	M 220 OHM,J,1/16W	1	
R3154,55	ERJ3GEYJ331	M 330 OHM,J,1/16W	2	
R3156	ERJ3GEYJ561	M 560 OHM,J,1/16W	1	
R3157	ERJ3GEYJ221	M 220 OHM,J,1/16W	1	
R3158	ERJ3GEYJ182	M 1.8KOHM,J,1/16W	1	
R3159	ERJ6GEY0R00	M 0 OHM, 1/10W	1	
R3160-63	ERJ3EKF2701	M 2.7KOHM, 1/16W	4	
R3164-67	ERJ3GEY0R00	M 0 OHM, 1/16W	4	
R3168	ERJ3EKF2000	M 200 OHM, 1/16W	1	
R3169-72	ERJ6ENF75R0	M 75 OHM, 1/10W	4	
R3173	ERJ3EKF2200	M 220 OHM, 1/16W	1	
R3174	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3177	ERJ3EKF1401	M 1.4KOHM, 1/16W	1	
R3178	ERJ3EKF1101	M 1.1KOHM, 1/16W	1	
R3179	ERJ3EKF1401	M 1.4KOHM, 1/16W	1	
R3180	ERJ3EKF1101	M 1.1KOHM, 1/16W	1	
R3181	ERJ3EKF1401	M 1.4KOHM, 1/16W	1	
R3182	ERJ3EKF1101	M 1.1KOHM, 1/16W	1	
R3183	ERJ3EKF1401	M 1.4KOHM, 1/16W	1	
R3184	ERJ3EKF1101	M 1.1KOHM, 1/16W	1	
R3185	ERJ6GEY0R00	M 0 OHM, 1/10W	1	
R3189	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3190,91	ERJ3GEYJ103	M 10KOHM,J,1/16W	2	
R3202-07	ERJ3GEY0R00	M 0 OHM, 1/16W	6	
R3251	TAJAAH0101JV	M 100 OHM,J,1/16W	1	D0GB101JA006
R3252	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3253	ERJ3GEYJ472	M 4.7KOHM,J,1/16W	1	
R3300,01	ERJ3EKF1501	M 1.5KOHM, 1/16W	2	
R3302	ERJ3GEYJ203	M 20KOHM,J,1/16W	1	
R3303,04	ERJ3GEYJ220	M 22 OHM,J,1/16W	2	
R3305-09	ERJ3GEYJ103	M 10KOHM,J,1/16W	5	
R3313,14	ERJ3GEYJ103	M 10KOHM,J,1/16W	2	
R3317,18	ERJ3GEYJ333	M 33KOHM,J,1/16W	2	
R3334	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R3337,38	ERJ3GEYJ220	M 22 OHM,J,1/16W	2	
R3401	ERJ3EKF2701	M 2.7KOHM, 1/16W	1	
R3402	ERJ3EKF1801	M 1.8KOHM, 1/16W	1	
R3403	ERJ3EKF2701	M 2.7KOHM, 1/16W	1	
R3404	ERJ3EKF1801	M 1.8KOHM, 1/16W	1	
R3405	ERJ3EKF2701	M 2.7KOHM, 1/16W	1	
R3406	ERJ3EKF1801	M 1.8KOHM, 1/16W	1	
R3407	ERJ6ENF2201	M 2.2KOHM, 1/10W	1	
R3408	ERJ3GEYJ473	M 47KOHM,J,1/16W	1	
R3409	ERJ6ENF6800	M 680 OHM, 1/10W	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R3410	ERJ6ENF2201	M 2.2KOHM, 1/10W	1	
R3411	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R3412	ERJ6GEYJ102	M 1KOHM,J,1/10W	1	
R3413	ERJ3EKF1800	M 180 OHM, 1/16W	1	
R3418	ERJ3GEYJ102	M 1KOHM,J,1/16W	1	
R3501,02	ERJ6GEYJ184	M 180KOHM,J,1/10W	2	
R3506,07	ERJ6GEYJ472	M 4.7KOHM,J,1/10W	2	
R3514-17	TAJAAH0101JV	M 100 OHM,J,1/16W	4	D0GB101JA006
R3521,22	ERJ3GEYJ472	M 4.7KOHM,J,1/16W	2	
R3525-28	ERJ3GEYJ103	M 10KOHM,J,1/16W	4	
R3529,30	TAJAAH0101JV	M 100 OHM,J,1/16W	2	D0GB101JA006
R3531,32	ERJ3GEYJ3R3	M 3.3 OHM,J,1/16W	2	
R3535,36	ERJ3GEYJ102	M 1KOHM,J,1/16W	2	
R3538,39	TAJAAH0101JV	M 100 OHM,J,1/16W	2	D0GB101JA006
R3544,45	ERJ3GEYJ472	M 4.7KOHM,J,1/16W	2	
R3546,47	ERJ3GEYJ3R3	M 3.3 OHM,J,1/16W	2	
RTL	TXNHY10QBS	CIRCUIT BOARD HY	1	⚠
X3101	H0J202500002	CRYSTAL	1	
		MISCELLANEOUS		
	THEL027N	SCREW	4	
	XTV3+10J	SCREW	5	
	TPCB13128	CARTON BOX	1	⚠
	TPDF1105	CUSHION	1	
	TPEH161	AIR MAT	1	
	TQZH461	INSTRUCTION SEET	1	
	TQZH469	INSTRUCTION BOOK	1	⚠
	XZBT6506	POLY BAG	1	
	THEL023Z	SCREW	4	
	TQE6691	POLY BAG	1	

7. Schematic Diagram for printing with A4

8. Cover for printing with A4

Important Safety Notice

Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacture's specified parts.

Notes:

1. **Resistor**
   All resistors are cabon 1/4W resistor, unless marked as follows:
   Unit of resistance is OHM [Ω] (K=1,000, M=1,000,000).
   - ◯ : Nonflammable
   - △ : Solid
   - ▨ : Wire Wound
   - ⊠ : Metal Oxide
   - ◎ : Metal Film
   - ⊗ : Fuse**:**
2. **Capacitor**
   All capacitors are ceramic 50V capacitor, unless marked as follows:
   Unit of capacitance is μF, unless otherwise noted.
   - ⊗ : Temperature Compensation
   - Ⓜ : Polyester
   - ⓜ : Metalized Polyester
   - ⊠ : Polypropylene
   - : Electrolytic
   - : Bipolar
   - Ⓣ : Dipped Tantalum
   - Ⓩ : Z-Type
3. Coil
   Unit of inductance is μF, unless otherwise noted.
4. Test Point
   - ⚲ : Test Point position
5. Earth Symbol
   - ⏚ : Chassis Earth (Cold)
   - ⏚ : Line Earth (Hot)
6. Voltage Measurement
   Voltage is measured by a DC voltmeter.
   Conditions of the measurement are the following:
   - Power Source ..... AC 100-240V, 50/60Hz
   - Receiving Signal ..... Colour Bar signal (RF)
   - All customer's controls ..... Maximum positions
7. Number in red circle indicates waveform nember.
   (See waveform pattern table.)
8. When arrow mark (↗) is found, connection is easily found from the direction of arrow
9. Indicates the major signal flow. : Video ➡ Audio ⇨
10. This schematic diagram is the latest at the time of printing and subject to change without notice.

Remarks:

1. The Power Circuit contains a circuit area which uses a separate power supply to isolate the earth connection.
   The circuit is defined by HOT and COLD indications in the schematic diagram. Take the follwing precautions.
   All circuits, except the Power Circuit, are cold.
   Precautions
   a. Do not touch the hot part or the hot and cold parts at the same time or you may be shocked.
   b. Do not short- circuit the hot and cold circuits or a fuse may blow and parts may break.
   c. Do not connect an instrument, such as an oscilloscope, to the hot and cold circuits simultaneously or a fuse may blow.
      Connect the earth of instruments to the earth connection of the circuit being measured.
   d. Make sure to disconnect the power plug before removing the chassis.
2. Following diodes are interchangeable.
   MA150- MA162 (Replacement part)

5 Schematic Diagrams

5.1. Schematic Diagram Notes

Important Safety Notice

Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacture's specified parts.

Notes:

1. **Resistor**
   All resistors are cabon 1/4W resistor, unless marked as follows:
   Unit of resistance is OHM [Ω] (K=1,000, M=1,000,000).
   - ◯ : Nonflammable
   - △ : Solid
   - ▨ : Wire Wound
   - ⊠ : Metal Oxide
   - ◎ : Metal Film
   - ⊗ : Fuse**:**
2. **Capacitor**
   All capacitors are ceramic 50V capacitor, unless marked as follows:
   Unit of capacitance is μF, unless otherwise noted.
   - ⊗ : Temperature Compensation
   - Ⓜ : Polyester
   - ⓜ : Metalized Polyester
   - ⊠ : Polypropylene
   - + : Electrolytic
   - NP : Bipolar
   - Ⓣ : Dipped Tantalum
   - Ⓩ : Z-Type
3. Coil
   Unit of inductance is μF, unless otherwise noted.
4. Test Point
   - ⚲ : Test Point position
5. Earth Symbol
   - ⏚ : Chassis Earth (Cold)
   - ⏚ : Line Earth (Hot)
6. Voltage Measurement
   Voltage is measured by a DC voltmeter.
   Conditions of the measurement are the following:
   - Power Source ..... AC 100-240V, 50/60Hz
   - Receiving Signal ..... Colour Bar signal (RF)
   - All customer's controls ..... Maximum positions
7. Number in red circle indicates waveform nember.
   (See waveform pattern table.)
8. When arrow mark (↗) is found, connection is easily found from the direction of arrow
9. Indicates the major signal flow. : Video ➡ Audio ⇨
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Remarks:

1. The Power Circuit contains a circuit area which uses a separate power supply to isolate the earth connection.
   The circuit is defined by HOT and COLD indications in the schematic diagram. Take the follwing precautions.
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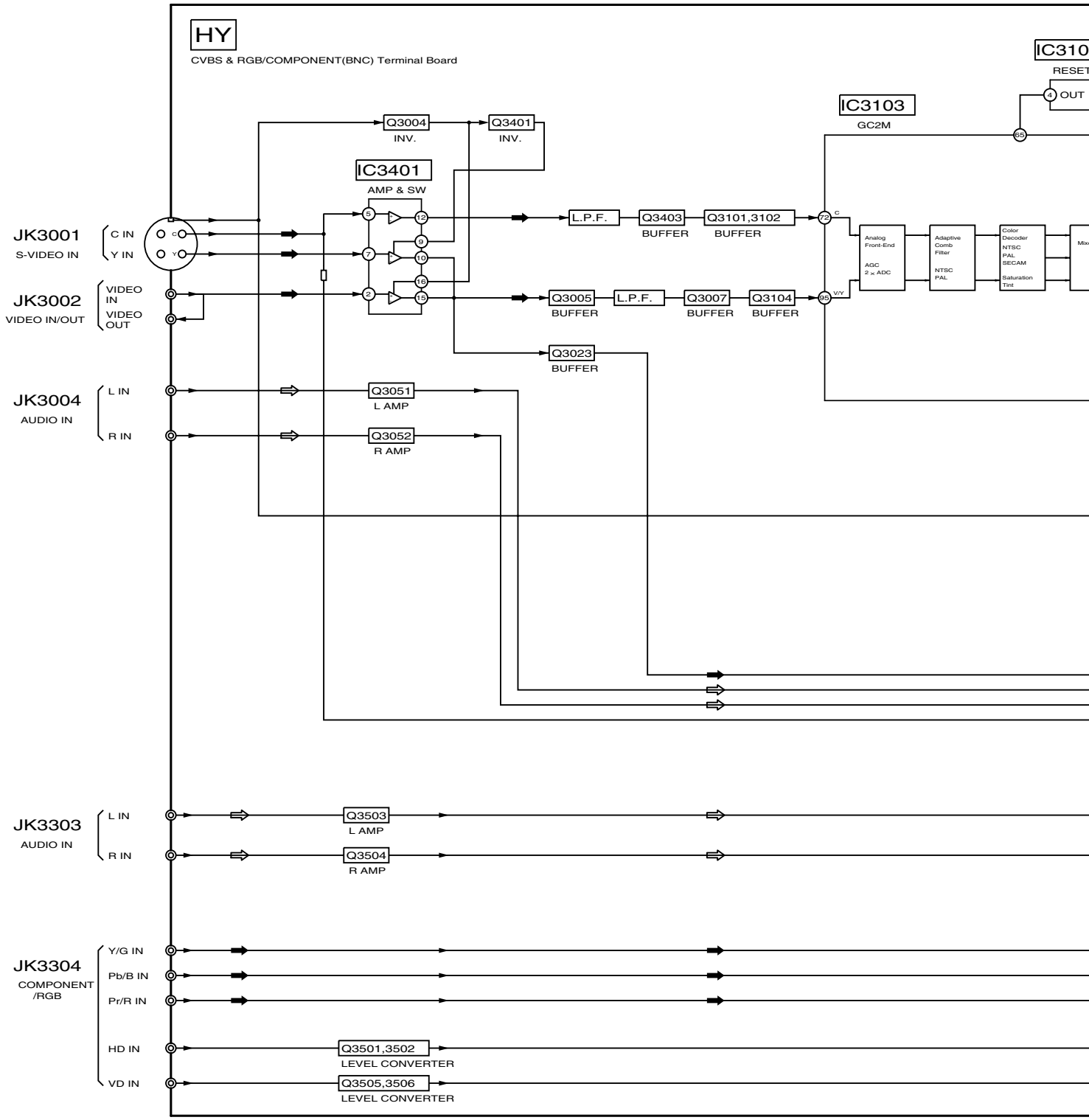
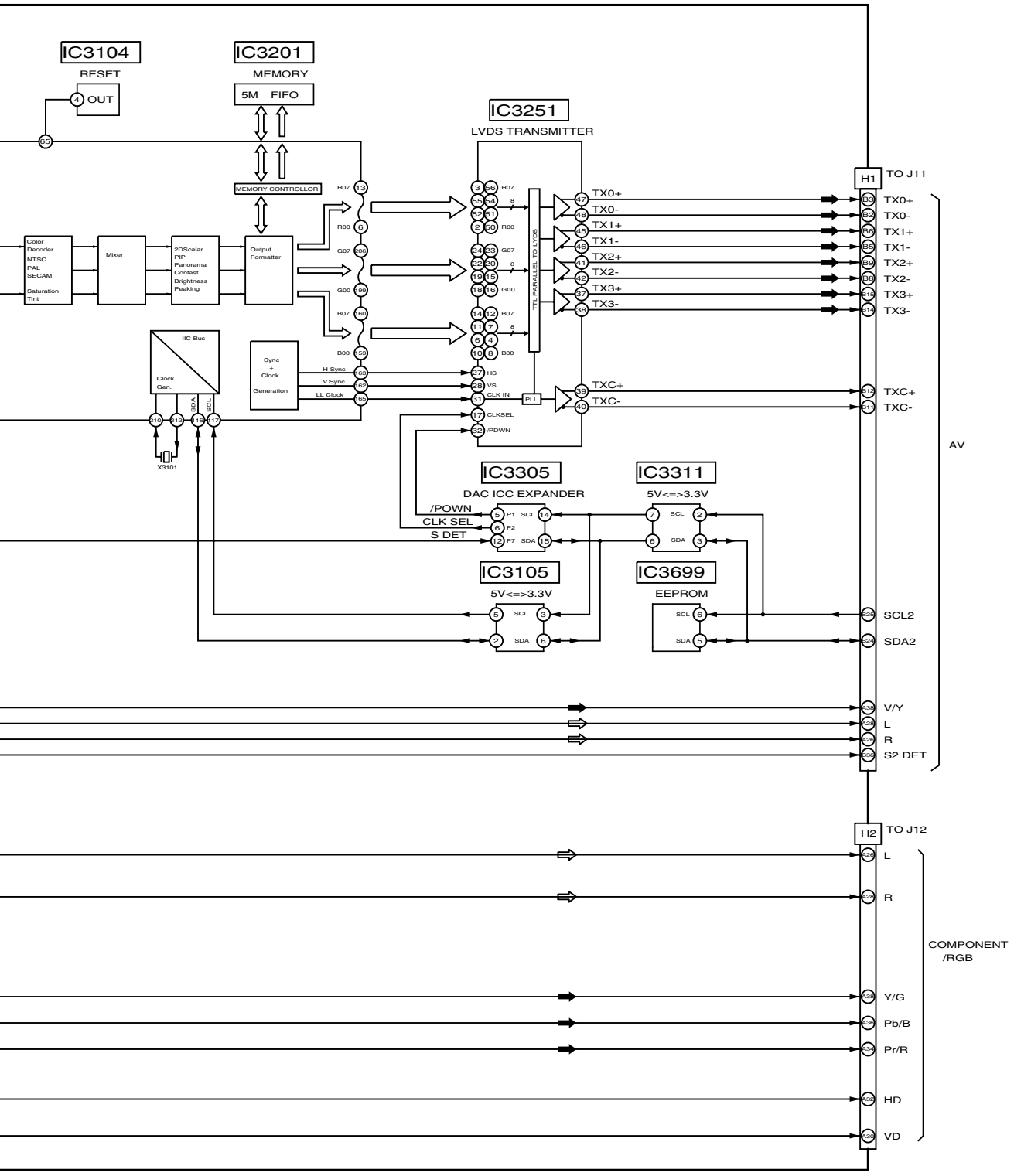
      Connect the earth of instruments to the earth connection of the circuit being measured.
   d. Make sure to disconnect the power plug before removing the chassis.
2. Following diodes are interchangeable.
   MA150- MA162 (Replacement part)

5.2. HY-Board Block Diagram

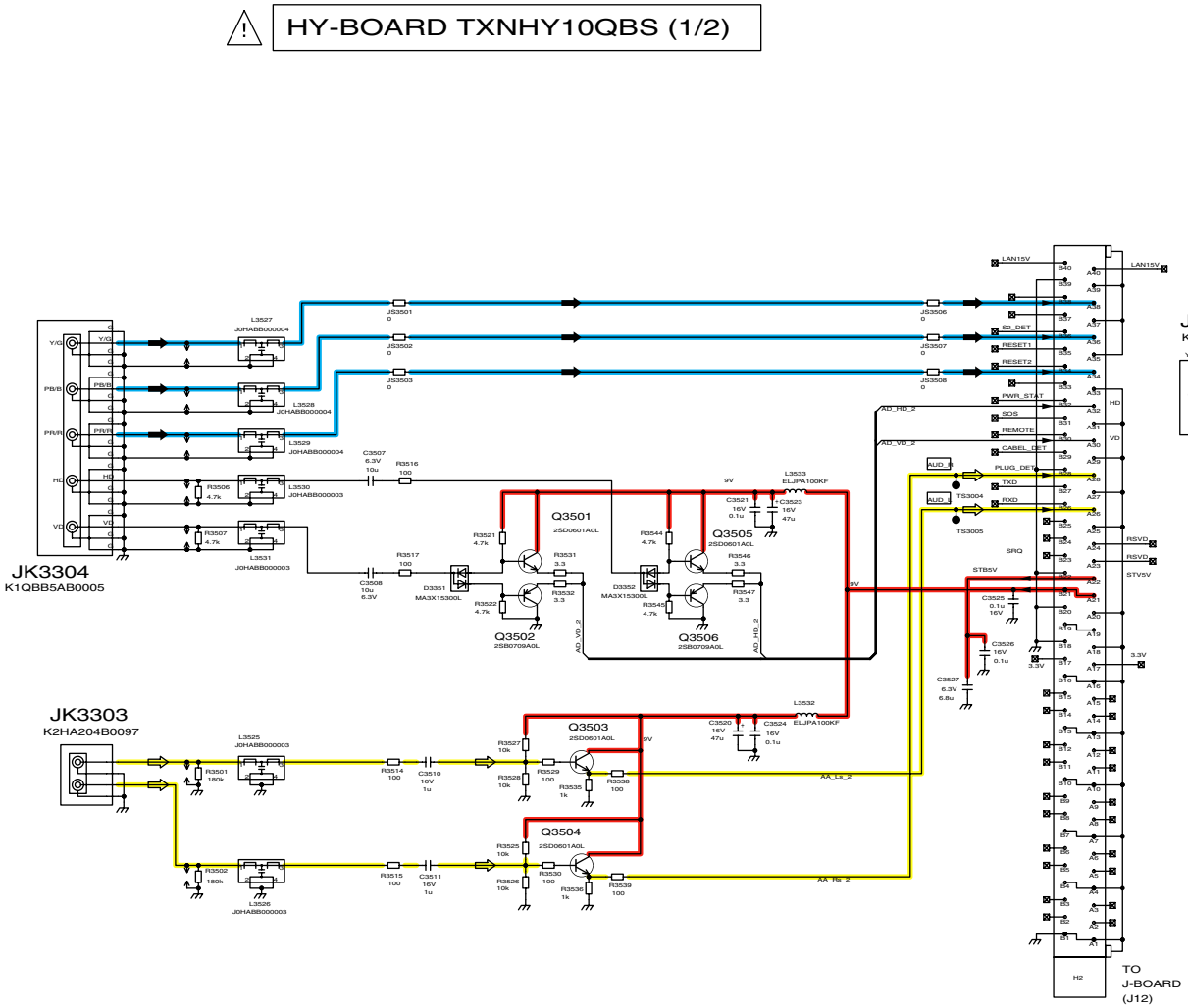


TY-42TM6Y
HY-Board Schematic Diagram

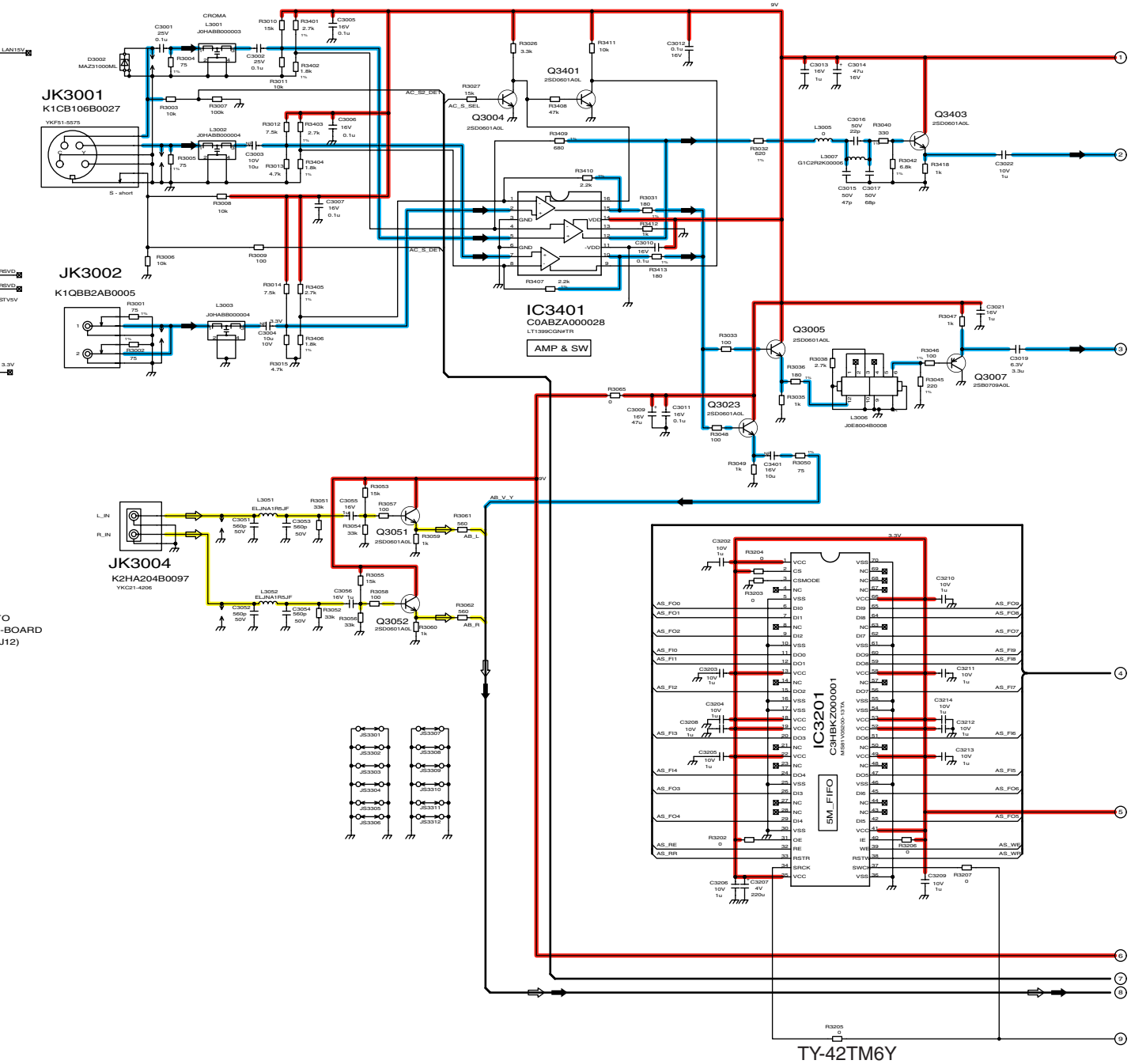


TY-42TM6Y
HY-Board Schematic Diagram

5.3. HY-Board (1 of 2) Schematic Diagram



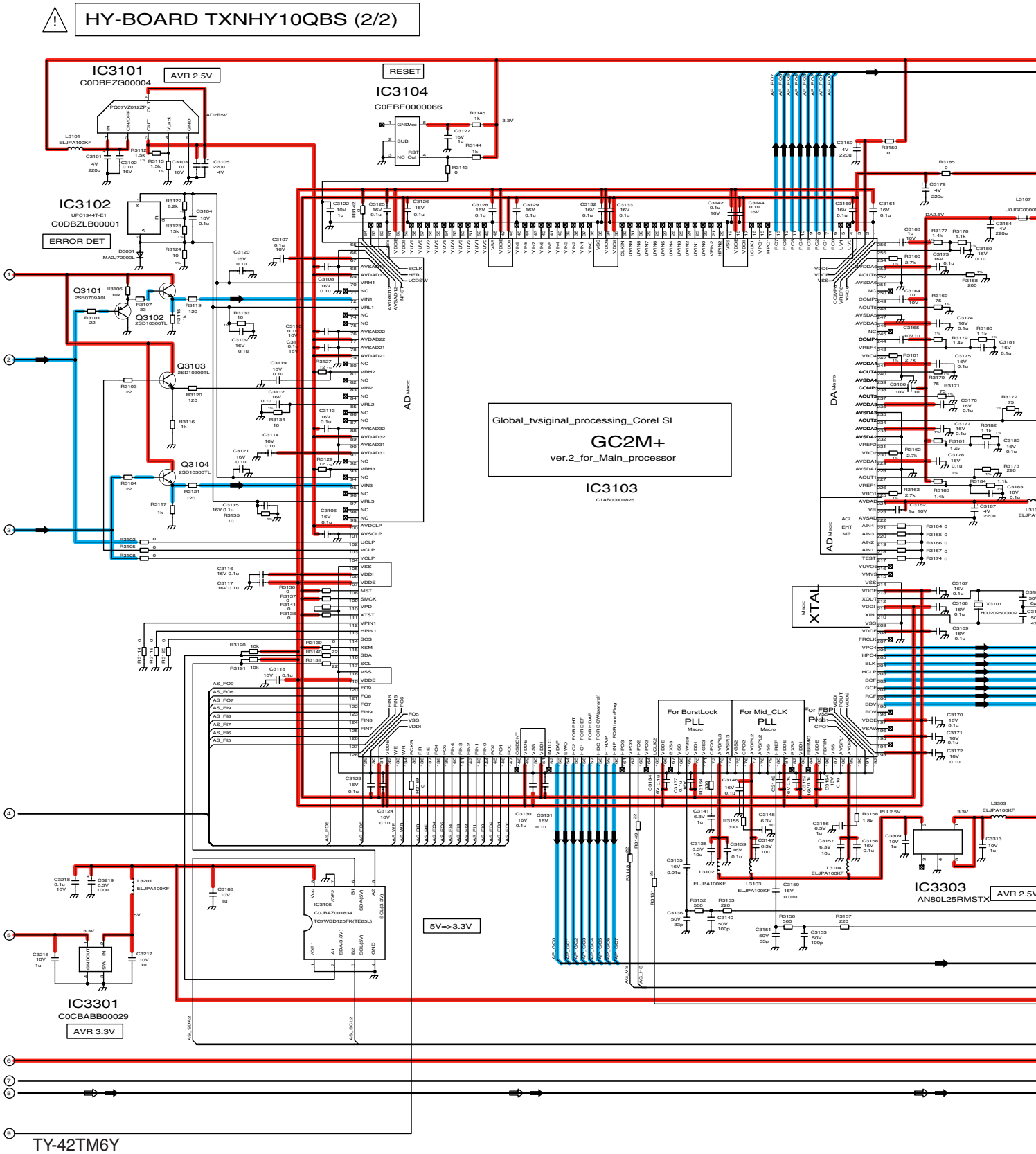
TY-42TM6Y
HY-Board (1 of 2) Schematic Diagram

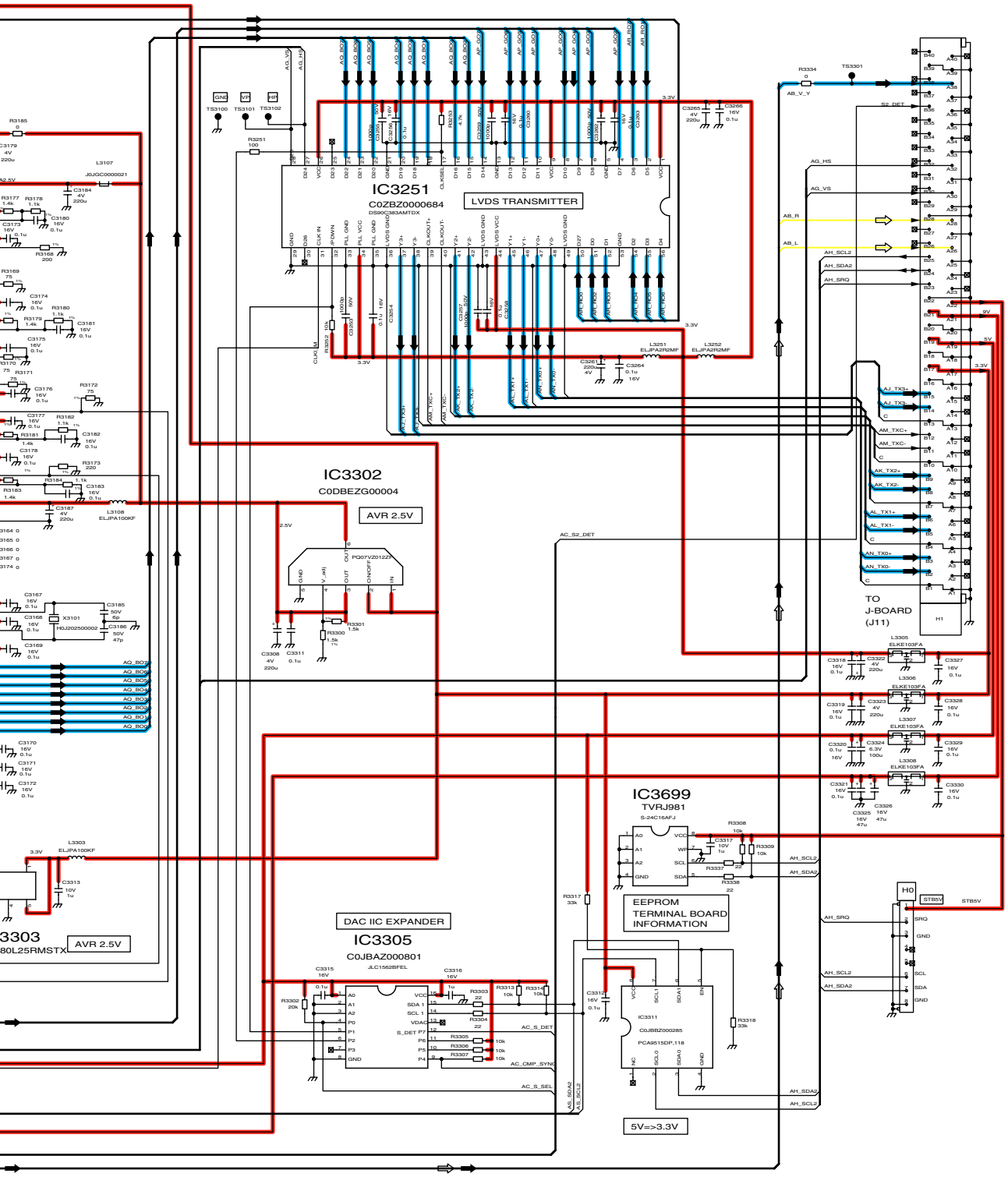


TY-42TM6Y
HY-Board (1 of 2) Schematic Diagram

5 6 7 8 9

5.4. HY-Board (2 of 2) Schematic Diagram





TY-42TM6Y
HY-Board (2 of 2) Schematic Diagram

14	15	16	17	18

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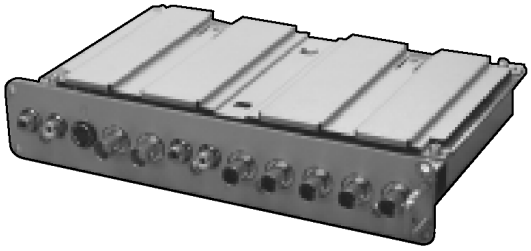
Service Manual

Composite / Component Video Terminal Board

TY-42TM6Y



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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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1 Safety Precautions

1.1. General Guidelines

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

1.1.1. Leakage Current Cold Check

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1MΩ and 5.2MΩ.
   When the exposed metal does not have a return path to the chassis, the reading must be ∞ .

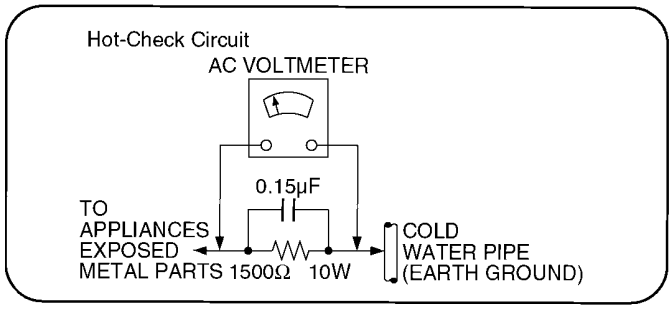


Figure 1

1.1.2. Leakage Current Hot Check (See Figure 1.)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5kΩ, 10 watts resistor, in parallel with a 0.15µF capacitors, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

2 Prevention of Electro Static Discharge (ESD) to Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as alminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, alminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   Caution

   Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise hamless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are imporant for safety.
These parts are marked by ⚠ in the schematic diagrams, Exploded Views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

3 About lead free solder (PbF)

Note: Lead is listed as (Pb) in the periodic table of elements.

In the information below, Pb will refer to Lead solder, and PbF will refer to Lead Free Solder.

The Lead Free Solder used in our manufacturing process and discussed below is (Sn+Ag+Cu).

That is Tin (Sn), Silver (Ag) and Copper (Cu) although other types are available.

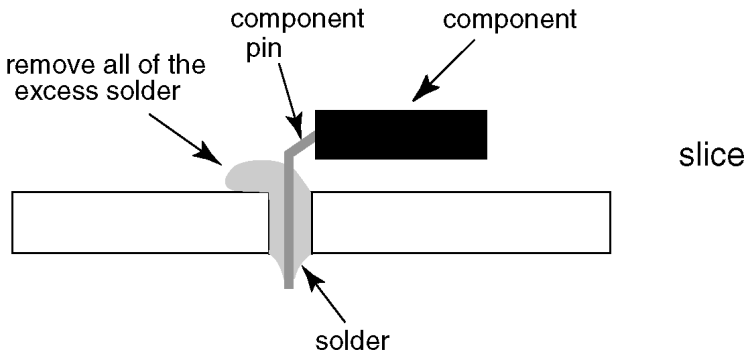
This model uses Pb Free solder in it's manufacture due to environmental conservation issues. For service and repair work, we'd suggest the use of Pb free solder as well, although Pb solder may be used.

PCBs manufactured using lead free solder will have the PbF within a leaf Symbol (PbF) stamped on the back of PCB.

Caution

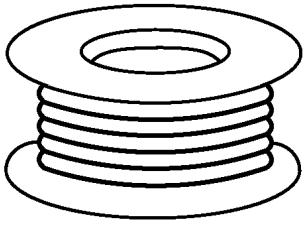
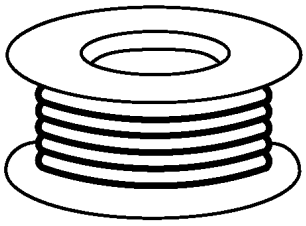
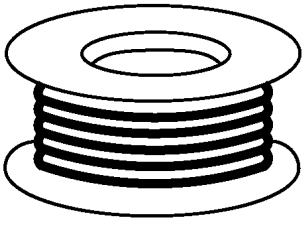
- Pb free solder has a higher melting point than standard solder. Typically the melting point is 50 ~ 70 °F (30~40 °C) higher. Please use a high temperature soldering iron and set it to 700 ± 20 °F (370 ± 10 °C).
- Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C).

  If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If this is not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.
- After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side. (see figure below)



Suggested Pb free solder

There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also be used.

0.3mm X 100g	0.6mm X 100g	1.0mm X 100g
		

HY

CVBS & RGB/COMPONENT(BNC) Terminal Board

JK3001 S-VIDEO IN: C IN, Y IN

JK3002 VIDEO IN/OUT: VIDEO IN, VIDEO OUT

JK3004 AUDIO IN: L IN, R IN

Q3004 INV. → Q3401 INV.

IC3401 AMP & SW

L.P.F. → Q3403 BUFFER → Q3101,3102 BUFFER

Q3005 BUFFER → L.P.F. → Q3007 BUFFER → Q3104 BUFFER

Q3023 BUFFER

Q3051 L AMP

Q3052 R AMP

IC3103 GC2M

IC3104 RESET

Analog Front-End

AGC 2 × ADC

Adaptive Comb Filter

NTSC PAL

Color Decoder NTSC PAL SECAM

Saturation Tint

Mixer

2DScalar PIP Panorama Contast Brightness Peaking

IC3201 MEMORY

5M FIFO

MEMORY CONTROLLOR

Output Formatter

IIC Bus

Clock Gen.

Sync + Clock Generation

X3101

R07 R00 G07 G00 B07 B00

H Sync V Sync LL Clock

IC3251 LVDS TRANSMITTER

TTL PARALLEL TO LVDS

PLL

HS VS CLK IN CLKSEL /PDWN

TX0+ TX0- TX1+ TX1- TX2+ TX2- TX3+ TX3- TXC+ TXC-

H1 TO J11

AV

IC3305 DAC ICC EXPANDER

/POWN CLK SEL S DET

IC3311 5V<=>3.3V

IC3105 5V<=>3.3V

IC3699 EEPROM

SCL2 SDA2

V/Y L R S2 DET

H2 TO J12

JK3303 AUDIO IN: L IN, R IN

Q3503 L AMP

Q3504 R AMP

JK3304 COMPONENT /RGB: Y/G IN, Pb/B IN, Pr/R IN, HD IN, VD IN

Q3501,3502 LEVEL CONVERTER

Q3505,3506 LEVEL CONVERTER

COMPONENT /RGB

Y/G Pb/B Pr/R HD VD

TY-42TM6Y
HY-Board Schematic Diagram

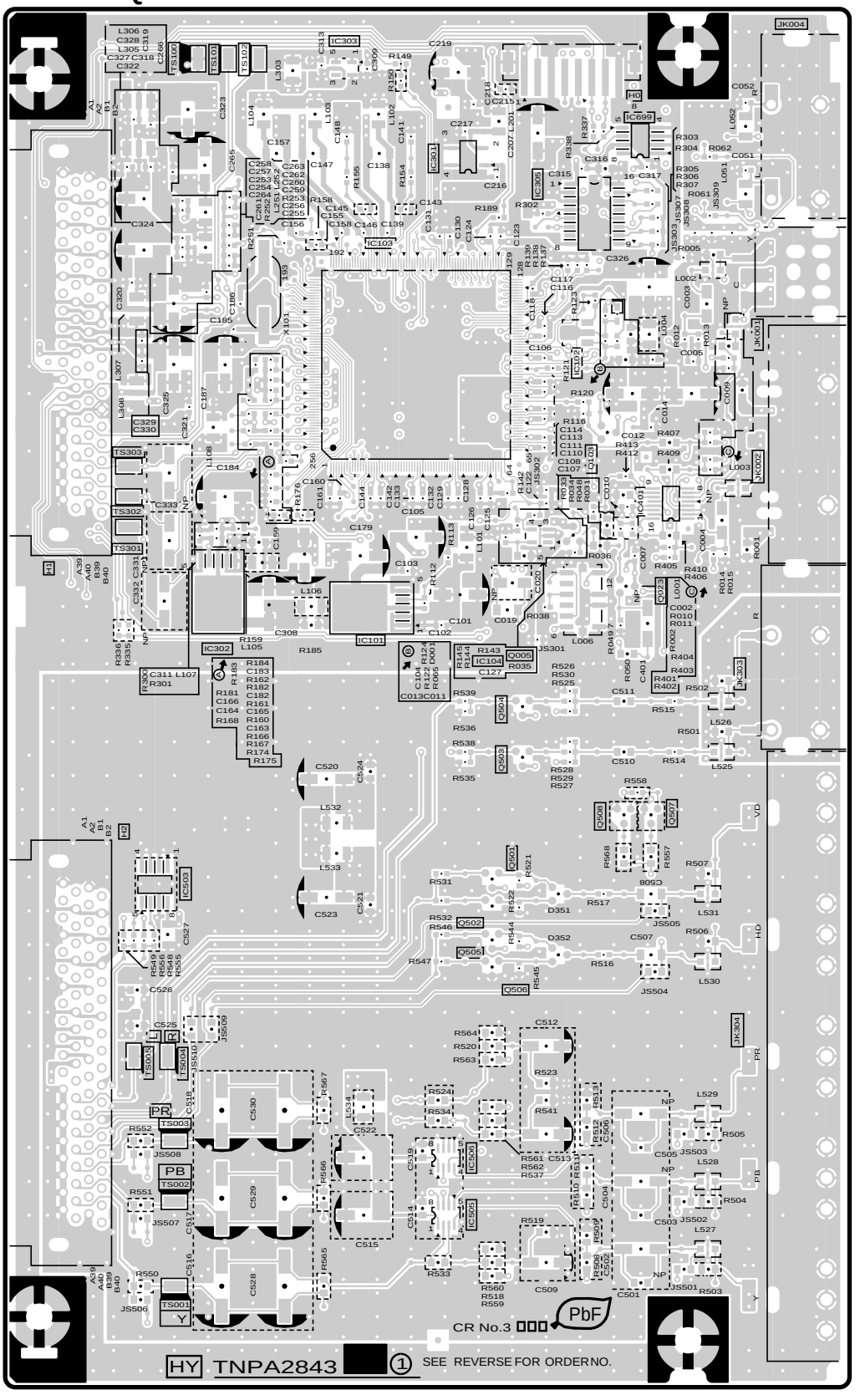
Parts Location

HY-BOARD (FOIL SIDE)			
IC		**TRANSISTOR**	
IC3105	B-5	Q3007	B-4
IC3201	B-6	Q3051	A-6
IC3251	C-5	Q3052	B-6
IC3311	B-6	Q3101	B-5
		Q3102	B-4
		Q3104	B-5
		Q3401	B-4
		Q3402	B-4
		Q3403	B-5

Parts Location

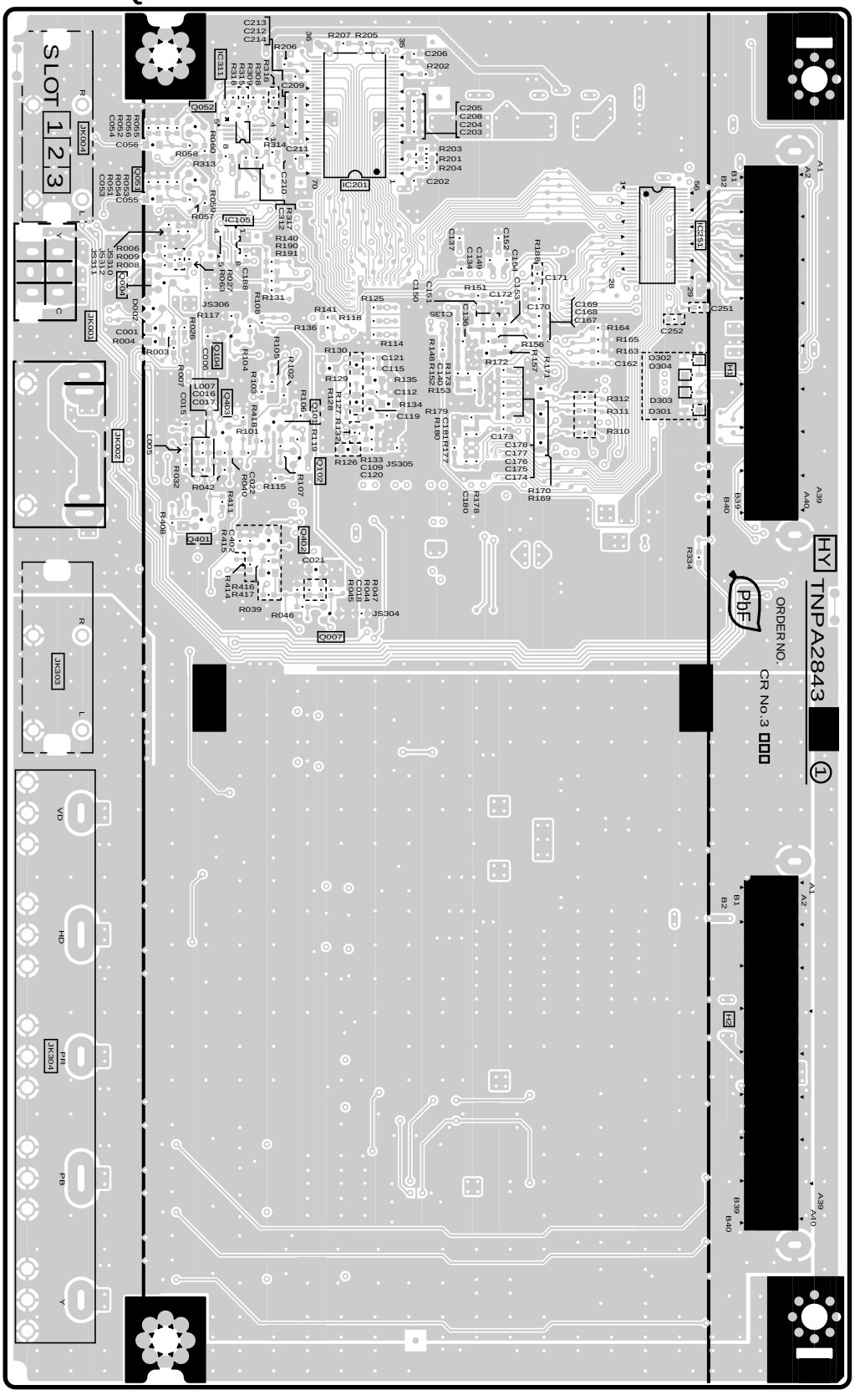
HY-BOARD (COMPONENT SIDE)			
IC		**TRANSISTOR**	
IC3101	B-4	Q3005	C-4
IC3102	C-5	Q3023	C-4
IC3103	B-5	Q3103	C-4
IC3104	C-4	Q3501	C-3
IC3301	C-6	Q3502	C-3
IC3302	B-4	Q3503	C-3
IC3303	B-6	Q3504	C-3
IC3305	C-5	Q3505	C-2
IC3401	C-4	Q3506	C-2
IC3503	A-3	Q3507	C-3
IC3505	B-1	Q3508	C-3
IC3506	B-2		
IC3699	C-6		

HY-BOARD(COMPONENT SIDE)
TXNHY10QBS



TY-42TM6Y
HY-BOARD TXNHY10QBS

HY-BOARD(COMPONENT SIDE)
TXNHY10QBS



HY-BOARD TXNHY10QBS (1/2)

JK3304
K1QBB5AB0005

JK3303
K2HA204B0097

JK3001
K1CB106B0027

JK3002
K1QBB2AB0005

JK3004
K2HA204B0097

IC3401
C0ABZA000028
LT1399CGN#TR
AMP & SW

IC3201
C3HBKZ000001
5M_FIFO

TO
J-BOARD
(J12)

TY-42TM6Y
HY-Board (1 of 2) Schematic Diagram

TY-42TM6Y
HY-Board (1 of 2) Schematic Diagram

HY-BOARD TXNHY10QBS (2/2)

IC3101
C0DBEZG00004
AVR 2.5V
PQ07VZ012ZP
L3101 ELJPA100KF
AD2R5V
RESET
IC3104
C0EBEE0000066
IC3102
UPC1944T-ET
C0DBZLB00001
ERROR DET
D3001 MAZJ72900L
Q3101 2SB0709ASOL
Q3102 2SD1030OTL
Q3103 2SD1030OTL
Q3104 2SD1030OTL
IC3103
C1AB000001826
Global_tvsiginal_processing_CoreLSI
GC2M+
ver.2_for_Main_processor
ADMacro
DAMacro
XTAL
For BurstLock PLL Macro
For Mid_CLK PLL Macro
For FBPLL (CPO)
IC3303
AN80L25RMSTX
AVR 2.5V
PLL2.5V
IC3251
C0ZBZ0000684
DS90C383AMTDX
LVDS TRANSMITTER
IC3302
C0DBEZG00004
AVR 2.5V
IC3699
TVRJ981
S-24C16AFJ
EEPROM
TERMINAL BOARD
INFORMATION
DAC IIC EXPANDER
IC3305
C0JBAZ000801
JLC1562BFEL
IC3301
C0CBABB00029
AVR 3.3V
IC3105
C0JBAZ001834
TC7WBD125FK(TE85L)
5V=>3.3V
TO
J-BOARD
(J11)
TS3301
TS3100
TS3101
TS3102
AC_S2_DET
AC_S_DET
AC_CMP_SYNC
AC_S_SEL
AH_SCL2
AH_SDA2
AH_SRQ
AB_V_V
AG_HS
AG_VS
AB_R
AB_L
S2_DET
AJ_TX3-
AJ_TX3+
AM_TXC-
AM_TXC+
AK_TX2-
AK_TX2+
AL_TX1-
AL_TX1+
AN_TX0-
AN_TX0+
TY-42TM6Y
HY-Board (2 of 2) Schematic Diagram
TY-42TM6Y
HY-Board (2 of 2) Schematic Diagram
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